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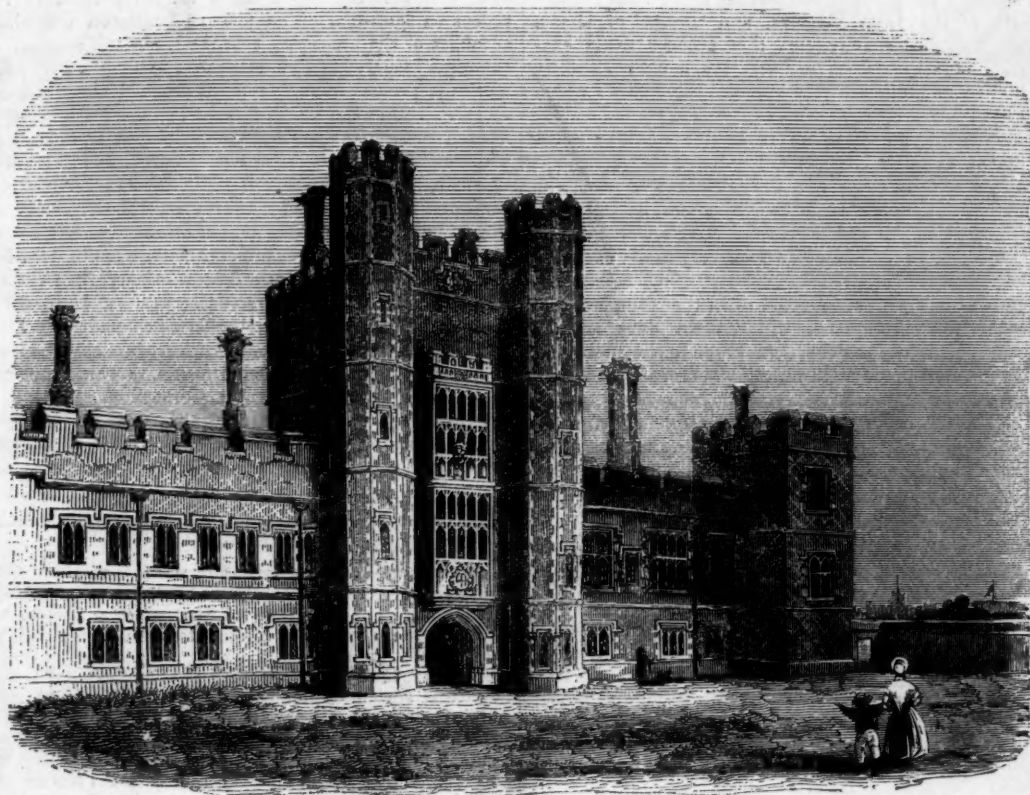
DECEMBER

24TH, 1842.

PRICE
ONE PENNY.



HISTORICAL NOTICE OF ETON COLLEGE. II.



PRINCIPAL ENTRANCE TO ETON COLLEGE.

THE principal design of the founder in the establishment of Eton appears to have been the education of scholars in grammar; who being afterwards properly graduated in academical degrees might be qualified for holy orders, and thus add to the number of the clergy. Accordingly, the royal founder making known his intention of erecting a college at Eton, mentions the scholars first, and they are the only persons who are designated with a name of distinction. They are particularized by the name of *Scholares Clerici*, thus intimating their designation for orders in the Church.

In order, therefore, to furnish the scholars with every facility for completing their education and taking holy orders, King Henry VI., in 1443, incorporated two small colleges, or hostels, at Cambridge, one of which he had founded two years before; and thus King's College, Cambridge, originated, to which, as Lambard remarks, "Eton annually sendeth forth her ripe fruit."

The scholars are named in the statutes next after the provost; and their number is stated at seventy. By the command of George III. they were called KING'S SCHOLARS. The qualifications required by the statute are that they be "*pauperes et indigentes*;" of good morals, docible, competently skilled in reading, chanting and grammar; not under eight years of age. They are eligible till fifteen; two years must intervene before their names can appear on the indentures for King's College. Preference is to be given to boys coming from parishes

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where Eton or King's College have estates, provided they are born in England or Wales; next, to those born in the counties of Buckingham or Cambridge, if the electors judge them competent; and due respect is ordered to be had to the choristers of Eton and King's College. No illegitimate person, or who has any incurable disease, or is so maimed in his limbs as to be incapable of entering into holy orders, is on any account to be admitted. Any possession of an estate exceeding five marks (or 3*l.* 6*s.* 8*d.*) per annum, is a disqualification; but the comparative value of money is of course now considered. None are to continue in college beyond their eighteenth year, unless they are nominated in the indenture of the preceding election to King's College, in which case they may continue at Eton until they have completed the age of nineteen, and this is locally called "the year of grace."

The time of election of scholars for Eton and King's is on that Monday which the provost and master of Eton shall name out of two continuous Mondays proposed to them by the provost of King's College, between the Feast of St. Thomas à Becket (the 7th of July), and of the Assumption of the Blessed Mary (the 15th of August). The last Monday in July has usually been the day. On this occasion all persons properly qualified may offer for examination. The provost of King's is to send such notice so that seven weeks beforehand schedules of the day appointed for examination may be

fixed up at the western door of the chapel, and at the great gate of the college. This notice has been customarily sent every Whit Tuesday.

The examiners or electors are the provost of Eton; the provost or vice-provost of King's; the vice-provost of Eton; the senior poser (a fellow of King's); the master of Eton school, and the junior poser. They all meet in the "great parlour" of the provost, called "the election chamber," and having seen that the indentures of the last election have been fully executed by the admission of the scholars into Eton College, and the dismissal of certain scholars for King's; and having heard read the 3rd and 4th of the Eton Statutes, and the Act of Queen Elizabeth against simony, &c., they proceed to the examination of scholars, having first taken oath faithfully to observe and diligently to execute the statutes which they have heard read.

The statute mentions no particular number to be nominated at such election either for Eton or King's; "but it is certain, (says Mr. Carlisle) that no proof can be adduced of more than twelve names having been ever entered on the indentures for King's College; and the number of twenty-four has been very rarely exceeded on the indenture for Eton."

The scholars who are elected upon the foundation at Eton are to be admitted within eight days after a vacancy; or if absent they are to be cited to appear within twenty-one days, in failure whereof their election is forfeited.

The statutes order that all scholars upon the foundation shall be taught gratis, and the masters take oath not to exact any payment. But an unwillingness on the part of the parents to have a reproachful distinction between their sons upon the foundation and the oppidans, has gradually led to an innovation.

The King's scholars are lodged, have commons, and a gown; the expense of which is restricted by the statutes to a definite sum.

The independent scholars, or "oppidans," are very numerous. Some, mostly of high birth, or the children of opulent parents, are boarded in the houses of the lower master and the assistants; some few in private houses, under the care of individuals who are locally styled "private tutors;" and the rest in the respective boarding-houses, the presiding masters and mistresses of which enjoy the prescriptive titles of "Domine" and "Dame."

The present terms for the education and board of oppidans are, according to Mr. Carlisle, as follows:—

	£.	s.	d.
The Master	6	6	0
Tutor	10	10	0
Board, washing, servants, &c.	50	0	0
Other expenses, exclusive of extra masters, ought not to exceed	33	4	0
	£100	0	0

That is to say, if the parent is prudent, and the expenses of the boy are properly restricted, the annual charge ought not to exceed one hundred pounds per annum. A sum far less than the public in general imagine, and deserving the highest commendations of every friend to learning. But in many instances, the improper concessions of parents and the consequent extravagance of the boys themselves more than double this sum.

The expenses of the oppidans who reside in the houses of their tutors, or of those who have private tutors, amount to a very large sum; but of this description the number is very limited.

There are many exhibitions or scholarships at Oxford in the gift of Eton College. The scholars are supported by various lands and other kinds of property bequeathed at various times for the purpose. There are also some exhibitions for superannuated scholars.

At the time when Mr. Carlisle wrote, the number of

boys at Eton amounted to 471:—"a circumstance (he says), which, as it far exceeds any former period, is peculiarly honourable to the talents and care of its able masters; and amply confirms the renowned character and prosperity of the school. *Stet Fortuna Domus.*"

In the year 1818 the Rev. J. Goodall, provost of the college, stated before a select committee of the House of Commons that the revenues of Eton College amount, one year with another, to nearly 7000*l.*; arising chiefly from the reserved rents; from the corn rents; from wood that is sold; and, in some instances, from manors, by fines and heriots; also from a certain portion of the redeemed land-tax. The provost produced the whole accounts of the preceding year, and, also an account of expenses incurred in the year 1506. Of this early document the provost exhibited an abstract. The whole receipts in 1506 were 652*l.* 14*s.* 2*d.*, and the disbursements 645*l.* 16*s.* 7*d.*; of which, for commons, 247*l.* 6*s.* 4*d.*; feasts 10*l.*; stipends to the provost and fellows 76*l.* 12*s.* 4*d.*; chaplains and clerks 33*l.* 7*s.* 6*d.*; officers 9*l.* 16*s.* 8*d.*; servants 22*l.* 10*s.* 10*d.*; Livery or Liberatura, being gown cloth for the provost 1*l.* 6*s.* 8*d.*; for the fellows 8*l.*; chaplain and clerks, servants, scholars, &c. 36*l.* 16*s.* 4*d.*; carriage 3*s.*; cutting cloth 8*d.*; infirmary 13*s.*; church 32*l.* 19*s.* 2½*d.*; hall 5*l.* 18*s.* 4½*d.*; buttery 1*l.* 0*s.* 10*d.*; parchments &c. 10*s.* 10*d.*; barber 8*s.*; laundress 3*l.* 3*s.* swan-apping 2*s.* 8*d.*; candles 2*l.* 13*s.*; fish-pond and brewery 11*l.* 16*s.* 1*d.*, kitchen 3*l.* 16*s.* 0½*d.*; garden 13*s.* 2*d.* stable 23*l.* 7*s.* 10½*d.*; expensæ forensicæ 34*l.* 0*s.* 9½*d.* solutio forensicæ 9*l.* 16*s.* 5½*d.*; obits 8*l.* 9*s.* 8*d.*; law-suits 6*l.* 3*s.* 7*d.*; repairs 43*l.* 3*s.* 11½*d.*

Of late years many improvements, additions, and restorations have been made to this noble college, and others are contemplated. A recent account states that,—

The estimated expense of the alterations is nearly 30,000*l.* The college chapel has already undergone very extensive alterations. The side walls of the principal part of the edifice were covered with wainscot to a considerable height; this, and also the screen which concealed the fine old Gothic stone-work, have been removed, and the altar-piece, as well as several ancient monuments, brought to light. A stone pulpit elaborately carved is being erected near the altar, in keeping with the character of the edifice. It is also in contemplation to remove the remainder of the wainscoting, and throw back the screen and organ gallery about sixteen feet into the ante-chapel. The old organ has been removed, and a new one erected in its place at a cost of 800 guineas. The alterations and improvements in the chapel alone, will cost little less than 4000*l.* They have been executed under the direction of Mr. Shaw.

We may remark that while attention has been laudably bestowed on the improvement of the instrumental music, the cultivation of vocal music has not been neglected. We understand that the pupils of the college are now receiving instruction in singing from Mr. Hullah on Wilhem's Method, so skilfully adapted by that gentleman to English use.

A most remarkable ceremony peculiar to Eton is THE MONTEM, a triennial procession the origin of which has given rise to much discussion among antiquarians. In 1759 the day was changed, on the suggestion of Dr. Barnard, from the first Tuesday in Hilary term, which commences on the 23rd of January, to the Tuesday in Whitsun week,—a much more favourable season of the year for such a show; besides, the Whitsun holidays had, a few years before, been transferred for five weeks at the period of the election; and the ceremonial was extended from every second to every third year. The first triennial Montem was in 1778, in the mastership of Dr. Davis.

The Montem consists of a procession of the boys in a kind of military order, to a small tumulus on the southern side of the Bath road, which gives the name of Salt Hill to a place so well known in the palmy days of stage-coaches, for the spacious inns that

distinguished it. Here the collegiate regiment dines; and after a Latin prayer has been read upon the mount, returns in the same order in which it issued forth. The head of the foundation scholars takes the lead as the captain of the cohort; the colours decorated with the arms of the college, and the motto, *PRO MORE ET MONTE*, is borne by another; and the different ranks, in as regular subordination as can be expected, are filled by the respective classes according to the order of the school.

Until the good sense of Dr. Barnard interposed to correct the customary absurdities of this ceremony, the Theatres and Monmouth Street contributed to clothe, in every variety of tawdry dress, this youthful corps. One of the dresses usually hired for the occasion was that of Roderigo, and the unfortunate wearer for the time being, obtained the appellation of "The silly gentleman." But the judicious interference of Dr. Barnard, in the first instance, followed up by a better taste in approaching more nearly to a regular military dress, has considerably improved the appearance of the procession.

Whatever might have been the original motive to this festival the present object is principally to collect money from all the spectators of the show, as it is called, for *salt*. The two chief collectors or salt-bearers are, a King's scholar, and an oppidan, whose activity will enable them to go through the fatigues of the day. The former is generally the second boy in the school, and the latter the captain of the oppidans,—unless they choose to waive their privilege respectively to the next in succession. They are arrayed in light and elegant dresses, each bearing a silk bag with, as is said, a small quantity of salt in it, to receive the contributions. They are followed each by an active man, dressed in a plain white dress, adorned with the same colours, who gives tickets to those who have paid their salt. They are assisted by twelve other boys, all King's scholars, and generally the first twelve of the fifth form, in somewhat similar, though less expensive dresses, who range the country as far as Maidenhead Bridge and Colnbrook,—custom forbidding the demand of contributions out of the county of Buckingham.

The ceremony is always very numerously attended by Etonians; the neighbouring gentry come from a distance to witness it, and the relations of the scholars may be supposed to feel an interest in such a spectacle. For above forty years George III. regularly honoured the Montem with his presence, and other members of the royal family have frequently attended.

The sum collected upon the occasion has been known to exceed 1000*l.*; but the expenses of a magnificent breakfast, the dinner to half the school, music, fees, &c., amount to nearly half the collection, the remainder of which becomes the property of the King's scholar, who is captain of the school. The procession is supposed to be coeval with the foundation of the college. Mr. Lysons inclines to the opinion that it proceeds from the old ceremony of the *bairn* or *boy-bishop*. He states that it originally took place on the 6th of December, the festival of St. Nicholas, the patron of children; being the day when it was customary at Salisbury, and other places where the ceremony was observed, to elect the boy-bishop from among the children belonging to the cathedral; which mock dignity lasted till Innocent's day, and during the intermediate time the boy performed various episcopal functions. "Within the memory of persons now living (says Mr. Lysons, who wrote about forty years since,) it was a part of the ceremony at the Montem that a boy, dressed in a clerical hat with a wig, should read prayers." He states, that the origin of the singular custom of collecting money for *salt* has been supposed by some to have originated from an ancient practice among the friars of selling consecrated salt. Mr. Ackerman suggests that the custom of the Montem

arose out of some monkish procession, of which there are such varieties, both as to mode and object, in Roman Catholic countries, and the salt is known to enter practically into the ceremonial of the Roman Catholic religion; "besides, the purification of the Virgin Mary is in the very beginning of February,—about the time when the Montem used to be celebrated; and the origin of this ceremonial might be connected with the offices of that festival."

THE HUNTING OF THE RAM was also a very ancient custom, which has very properly been abolished. The college had an ancient claim upon its butcher to provide a ram on the Election Saturday, to be hunted by the scholars; but the animal having upon one occasion been so pressed as to swim across the Thames, it ran into Windsor Market with the boys after it, and much mischief was caused by this unexpected accident. The health of the scholars had also occasionally suffered from the length of the chase, and the heat of the season. The character of the sport was therefore changed about the year 1740, when the ram was ham-strung, and after the speech, was knocked on the head with large twisted clubs, which are reported to have been considered as Etonian curiosities. But the barbarity of the amusement caused it to be altogether laid aside at the election in 1747, and the flesh of the ram given to be prepared in pasties. The dish still continues nominally to grace the Election Monday dinner, though, as Mr. Nicholas Carlisle remarks, the meat no longer boasts its original toughness, being in fact, the flesh of excellent wethers.

MONODY.

No sun—no moon!
No morn—no noon—
No dawn—no dusk—no proper time of day—
No sky—no earthly view—
No distance looking blue—
No road—no street—no 't'other side the way—
No end to any Row—
No indications where the Crescents go—
No top to any steeple—
No recognitions of familiar people—
No courtesies for showing 'em—
No knowing 'em!—
No travelling at all—no locomotion—
No inkling of the way—no notion—
'No go'—by land or ocean—
No mail—no post—
No news from any foreign coast—
No Park—no Ring—no afternoon gentility—
No company—no nobility—
No warmth, no cheerfulness, no healthful ease—
No comfortable feel in any member—
No shade, no shine, no butterflies, no bees—
No fruits, no flowers, no leaves, no birds, NOVEMBER!

THE men of most credit in our time are the usurers, for they credit most men: and though their greatest study be security, yet it is usually their fortune to be fullest of care. Time is precious to them: for they think a day broke to them is worth a brokerage from their creditor. Yet this they find by use, that as they have much profit by putting out, so must they have much care to get it in. For debtors are of Themistocles' mind, and take not so much care how to repay all, as how they may not pay at all their creditors, and make this their first resolution, how they may make no resolution at all. I envy not therefore the usurers' gains, but considering they (as merchant-adventurers) send abroad their estates in uncertain vessels, sometimes into the bankrupt rivers of prodigality and unthriftiness, sometimes into the seas of casualties and misfortunes, that many times their principal comes short home, I think with myself, Let them gain much by the adventure, that adventure so much to gain. I will make this use of those uses, as to claim no interest in their gains, nor to owe anything to any man but love. If I lend where need is and receive my principal again, I will account that my principal gain and think my courtesy but a commanded charity.—ARTHUR WARWICK.

COPERNICUS.



FROM THE STATUE OF COPERNICUS BY THORWALDSEN,
ERECTED AT WARSAW, 11TH MAY, 1830.

NICOLAUS COPERNICUS was born at Thorn, in Prussia, a town on the Vistula, near the spot where it crosses the Polish frontier. His real name was COPERNIK, or, according to some, ZEPERNIC. He was descended from a distinguished family, and the date of his birth has been stated the 19th January, 1472, but more generally admitted to be the 19th February, 1473. The astrologers, adopting the latter, say that the horoscope was a most happy one for talent, and they were certainly correct, as most persons are likely to be who predict an event after it has happened. Having enjoyed the advantages of a domestic education, and attained some proficiency in the classics, he was sent to Cracow to complete his education. Here he made a successful application of his powers to philosophy and medicine, and obtained the degree of Doctor: but from his earliest youth he had displayed an ardent love for the mathematics and received with avidity the instruction offered to him. He also studied astronomy, and accustomed himself to the use of astronomical instruments. Attracted by the lustre which Regiomontanus was conferring on this sublime science, he resolved to visit Italy to seek the instructions of this celebrated man; and in order to render this journey as profitable as possible, he studied perspective, drawing, and painting, in which arts he is said to have succeeded perfectly. One of the artistical productions recorded of him is his own portrait. This interesting picture came into the possession of Tycho Brahé, who, taking advantage of the fact that the portrait was only a half-length, wrote an epigram, the point of which was that the whole earth could not contain the whole of the man who whirled the earth itself in space.

At the early age of twenty-three Copernicus commenced his travels. He stopped at Bologna in order to hear the astronomer Dominico Maria, who, being charmed with the sagacity of his youthful disciple, received him into his friendship. At Bologna he made some astronomical observations, and conceived the notion, (erroneous though it be,) that the altitude of the

Pole was not always the same at the same place. This was about the year 1497. In the year 1500 we find him at Rome, the intimate friend of Regiomontanus. This astronomer appointed him to a mathematical chair, which he is said to have occupied with much distinction. He continued his observations on the heavens, and after some years returned to his country, where he was very favourably received, as well on account of his extensive knowledge as for the amenity of his manners. At length he settled at Frauenberg, (a small town on the shores of the Haff, near the mouth of the Vistula, and about fifty miles from Königsberg and Dantzic,) where his uncle, the Bishop of Warmia, had procured him a canonry in the diocesan church. But he was not permitted to take peaceful possession of his office; he had to combat certain conflicting claims and unjust pretensions, but his clear right, aided by his constancy and courage, won for him the privilege of enjoying that leisure and tranquillity which this situation seemed from the first to promise. He now divided his time among three principal occupations, namely, the performance of the sacred duties connected with his office—the dispensing of medicines and medical advice gratuitously to the poor—and the cultivation of his cherished scientific pursuits*. He mingled but little with men, and the affairs of nations he regarded not—he considered all conversation profitless except that of a serious and learned cast, and therefore formed no friendships except with serious and learned men, among whom are particularly mentioned Gysius, bishop of Culm, and his pupil Rheticus, who afterwards edited his great work. But, notwithstanding this life of seclusion we find him engaged in the administration of the temporalities of the bishopric, which was intrusted to him several times during the vacancies of the see. This commission required both probity and courage; it was necessary to defend the rights of the see against the claims of the Teutonic Knights, then a very powerful body. Copernicus was neither dazzled by their authority nor intimidated by their threats. Thus we see in his character firmness and constancy happily blended with habits of study and of contemplation,—qualities no less necessary than genius, to attack and subvert prejudices which were hal- lowed as it were by the credulity of ages. He had seen the most celebrated astronomers among his contemporaries; he was acquainted with the works of the ancients, and was as much astonished at the complication of their systems, and the want of symmetry which they supposed in the arrangement of the universe, as at their want of agreement among themselves, and with observed phenomena.

He proposed to himself the task of making a comparative survey of all these systems, in order to select from every one some feature which appeared consonant with truth, and thus endeavour to reunite truths scattered through many systems into one system, to be distinguished by symmetry and simplicity. Amidst a variety of conflicting opinions he paused upon two which seemed to merit most careful attention:—*first*, the system of the Egyptians, which supposed Mercury and Venus to revolve round the sun, but which also supposed Mars, Jupiter Saturn, and the sun, to revolve round the earth: and, *secondly*, the system of Apollonius Pergæus, who adopted the sun as the centre of all the planetary motions, but supposed the sun to revolve round the earth like the moon,—an arrangement which afterwards became the system of Tycho Brahé. Copernicus was particularly attracted by these systems, inasmuch as they represented admirably the limited excursions of Mars and Venus round the sun, and also explained their direct, stationary and retrograde motions, an advantage which the last of these systems extended even to the superior planets.

* The house at Allenstein which Copernicus there occupied is still shown; and in the walls of his chamber may be seen some perforations which he made in order to observe the passage of the stars across the meridian.

Thus these astronomical systems no longer appeared to him as unguided flights of the imagination: for having tested them by experiment, and discovered the conditions under which it was necessary to bring them, he had already overcome the most difficult part of his undertaking, because he had acquired the means of applying them experimentally. On the other hand he saw that the Pythagoreans in their system had removed the earth from the centre of the universe, and had placed the sun there. It appeared to him that the system of Apollonius would become more simple and symmetrical, with the single modification of placing the sun as a fixed centre, and supposing the earth to revolve round him. He saw also that Nicetas, Heraclides, and other philosophers, in placing the earth in the centre of the universe, had conferred upon it a rotatory motion necessary to account for the phenomena of the rising and setting of the stars and the alternations of day and night. He also regarded with approval that portion of the system of Philolaus, who removed the earth from the centre of the universe, and not only supposed it to revolve on an axis, but also with an annual rotation round the sun; and although in the time of Copernicus it might appear difficult and even absurd thus to remove the earth from the centre, and reduce it to the rank of a simple planet, yet seeing that the astronomers up to this time were in the constant habit of describing circles in the heavens, until

With centric and eccentric scribbled o'er,
Cycle and epicycle, orb in orb—

they had introduced discord into the sublimest harmony—the music of the spheres—he thought that an equal license might be granted to him; especially as his efforts were to produce simplicity, instead of adding complexity to the complex. It was thus, by adopting what was true in every system, and rejecting what was false and complicated in all, that he composed that admirable system, called emphatically the COPERNICAN, which still remains as the only true exponent of the arrangement of the planetary bodies.

Towards the year 1507 Copernicus began to develop more clearly the ideas of which we have traced the gradual formation, and to reduce his discoveries to writing, but as we have already seen he did not confine himself to general phenomena, nor remain satisfied with their conformity with the great law which he had thus discovered. He perceived that to prove his system it was necessary to enter into detail, and the actual calculation of particular phenomena; in order to deduce therefrom tables of all the celestial motions, and thus to furnish the means of predicting them with all the simplicity and precision which the magnitude of the conception itself, and the first trials which it had undergone, seemed equally to promise. This was the occupation of his whole life. He began to make observations and to collect and combine those which were furnished to him by others*, and in particular he endeavoured to deduce from his theory those phenomena of the system of the world, which until then had appeared the most complicated,—such as the stations and retrogressions of the planets, and the precession of the equinoxes. Finally, when he thought he had accumulated enough of observation and of proof, he undertook to expound the whole of his discoveries in a work divided into six books, which he called *De orbium celestium revolutionibus*, in which he reduces the whole of astronomy to the dominion of a single principle. This work appears to have been completed about the year 1530, when its author had attained the age of fifty-seven.

The fame of these discoveries was already abroad, and the most celebrated astronomers impatiently desired

their further development: they urged him to publish, but he hesitated; each day he corrected the data with which more exact observations furnished him, and he added the results which study and contemplation supplied; lastly, it must be confessed, that he feared to endanger his repose in thus submitting himself to the criticisms of his contemporaries, and this fear was unhappily not unfounded. "There is nothing so arrogant or intolerant as ignorance," remarks M. Biot, whose elegant memoir of Copernicus has been our chief authority in this compilation. "Display the truth to men," continues he, "and if the object interest them but little, they may pardon your doing so; but if your wish to root up a long cherished opinion, or even disabuse them of a prejudice the most narrow and unfounded, no matter, the very fact of their having constantly admitted it is of itself sufficient to wound their pride, or it may be to arm their hostility against him who may have proved himself more cautious or more sceptical than themselves." The example in the case of Copernicus was very striking. Whilst the most distinguished men of learning and science, the only proper judges in such matters, admitted the truth, the beauty, and the importance of his discoveries, the crowd became discomposed by them, and attempted to denounce them as absurd chimeras. They even went so far as to ridicule Copernicus in a comedy performed on the stage at Elburg. But the respectable character of this great man, and perhaps more than all the silence which he had so constantly maintained, preserved him from insult. He treated the author of the comedy as Socrates had treated Aristophanes under similar circumstances, with silent scorn. "We need not wonder," says M. Biot, "that Galileo and Descartes had been persecuted, and that Newton had hesitated to give to the world his grand discoveries." However, Copernicus felt that by longer delaying the publication of his researches he left open a freer field for ignorance, and that the exposition of such evident truths accompanied by proofs so numerous and so palpable would be the best means of refuting the charge of absurdity which was so generally brought against his doctrines. He therefore permitted his friends to publish his book, and in a dedication to Pope Paul III., he assigned as a reason for publication the desire to escape from the charge of being unwilling to encounter the criticisms of enlightened persons; and farther, that his Holiness by approving of the book might guard him from the tooth of calumny.

The work was printed at Nuremberg, under the direction of his friend and disciple Rheticus. The impression was just completed, and Rheticus sent to Copernicus the first copy, when this great man, who had enjoyed perfect health all his life, was attacked by a dysentery, which was immediately followed by a paralysis of the right side and a decay of the mental powers. It was only a few hours before he uttered his last sigh that the copy of his work arrived;—it was put into his hands, he touched it, he saw it, for an instant recognised it, and was soon removed to sublimer scenes even than those treated of in his volume. He died on the 24th of May, 1543, aged seventy.

His tomb, which is not distinguished from those of the other canons, was, in 1581, adorned with an epitaph written in Latin by Bishop Cumer; and in 1800 a small monument was erected in honour of the illustrious discoverer of the true system of the heavens. In the year 1830, the Academy of Sciences at Warsaw erected by subscription a bronze colossal figure, designed by the celebrated Thorwaldsen. The figure, which is raised upon a huge block of marble, is seated, and has a globe in one hand, and a pair of compasses in the other.

Copernicus left several manuscript treatises, which are preserved in the library belonging to the cathedral at Frauenberg. Here also is shown a well furnished with water by an aqueduct, and hydraulic works constructed by

* In 1584 Tycho Brahe sent Olaus, one of his pupils, to Frauenberg, to measure the height of the pole upon the tower where Copernicus had made his observations. He preserved with much veneration the parallax instrument, constructed with two rules of wood divided each into 1414 parts, which Copernicus had himself made for his own use.

him. The machinery of the pumps which he erected has long since disappeared, but a model thereof is still preserved in the cathedral, and is supposed to have been imitated in the waterworks at Marly, near Versailles. The tower which contained the machinery still stands near the cathedral. It bears on its southern wall four Latin verses inscribed in honour of Copernicus. Besides supplying the Domberg, or cathedral hill, he collected the neighbouring streams and introduced into the town a current of water sufficient to turn a corn-mill, an advantage which the inhabitants did not before enjoy.

In Mr. Murray's *Hand-book for Northern Germany* it is stated as a curious fact, perhaps not generally known, that the papal excommunication of Copernicus for publishing his system of the heavens was revoked in 1821.

ON

THE ART OF CHANGING FEVER INTO FOOD.

He that contributes neither study, labour, nor fortune to the public is a deserter of the community. * * * Whatever principles and actions have an inseparable connexion with the public happiness, and are necessary to the well-being of society, are fundamental laws of nature, and bear the stamp of divine authority. * * * By the law of nature I would be understood to mean that will of God which is discoverable to us by the light of reason, without the assistance of revelation.

WE recently noticed the extraordinary fact that the annual slaughter in England and Wales from *preventible* causes of typhus, which attacks persons in the vigour of life, is double the amount of what was suffered by the allied armies in the battle of Waterloo.

While it is the especial province of the medical art to palliate present evils, it is manifestly the duty of all to seek the root and origin of every social misery, with the view of anticipating future effects from the same causes.

"For the sake of perspicuity," says the physician, "we shall divide the specific causes of fever into three kinds. 1. Miasms rising from the soil. 2. Those emanating from the bodies of men accumulated in a confined space. 3. Those thrown off from the bodies of persons labouring under disease." These last are generally called contagious. "These several kind of miasm operate on the human body by means of the air. The air is tainted or vitiated by them, and in this state, being received into the lungs, creates disease."

In analyzing these causes of disease, with the view of ascertaining the extent to which it may be practicable in common life to control them, it is evident that ventilation will dilute, and render harmless, the unwholesome vapours that pollute the air. "A great difference naturally exists between different portions of air, in proportion as this air is confined in a smaller or larger space, or as there may be one or more centres, from whence contagion may emanate. A single person confined in a small room, may render the air unpleasant to another entering it, while a whole army might bivouac without producing such an effect*." The effectual and easy method, therefore, is to dilute the corrupted air with the purer external atmosphere. Aërial currents speedily restore a healthy circulation.

It is not, however, only the atmosphere that requires this thorough mixing. The surface of the earth must necessarily become covered with the remains of an organized vegetable and animal creation, and this superficial deposit is either buried in the subsoil by the industry of man, or recoils upon his indolence with pestilential vapours, that desolate his health and home.

Human evils may be divided into those which affect the individual, and those that are common to the race. The former are more immediately under personal control, inasmuch as, by the exercise of our moral attributes and intellectual endowments, it is given us to work out in part our own well-being. But general evils seem to invite public remedies. Each is responsible

for the results of his own actions, but the moral contagion of vice, or the physical infection of bodily disease, once suffered to extend beyond the centres of their origin, become obnoxious to all around, and require the strenuous arm of legislation. The force of a bad example is not more powerful over vacillating principles of conduct, than the force of a corrupt material atmosphere which changes the stream of life into an unhealthy current. In the well ventilated wards of an hospital, the primary suffering is assuaged, and the secondary results avoided, while the prison attempts in a similar manner to arrest social and individual degeneration. It is the object, however, of universal literature to anticipate, in the majority of cases, the necessity either of hospital or gaol, by enabling all to avoid, by giving them the means of understanding the early causes of human evils; leaving it, of necessity, to their own moral firmness whether men will avail themselves of such immediate blessings.

The instinctive scavengers of nature teach reasonable man the necessity of preventing the stagnation of matter. The scenes witnessed, for example, on the battle-fields of the British army in India, "realized the sublime invitation in Sacred Writ for the birds of prey to come to the feast of death. 'Come, and gather yourselves together, that ye may eat the flesh of kings, and the flesh of captains, and the flesh of mighty men, and the flesh of horses, and of them that sit on them, both small and great.' * * During the night, hyænas, jackals, and wild beasts of various kinds, allured by the scent, prowled over the fields with a horrid noise, and in the morning a multitude of vultures, kites, and birds of prey, were seen asserting their claim to a share of the dead*." "All men," says Job, "shall lie down alike in the dust, and the worms shall cover them."

But the indolent living are hardly less pestiferous to the living than would be the unburied dead. The physical features of a locality render it an advantageous situation for the settlement of a community; houses increase as inhabitants multiply; the harvests of centuries and generations of sheep and oxen, besides numberless minor articles of food, are brought from the surrounding districts to supply this social centre, and are for the most part, left there to be absorbed by, or at the best inhumed in, the same soil that receives the successive generations of consumers. The blessing of a neighbouring river may dissolve much of this refuse material in the ocean; a portion, at the expense of much money, time and labour, is returned to the farmer as manure; but by far too large a part is suffered to remain on, or near, the surface of the ground, whereby the atmosphere becomes impregnated with poison. It is considered as an established law of nature that, under similar conditions, the quantity of dead organized matter in cities, which is neither removed for manure, nor washed away by artificial sewerage, may be read off in the number of cases of malignant fever that afflict the inhabitants.

The condition of large rural districts in the immediate vicinity of the towns, and of the poorest districts of the towns themselves, presents a singular contrast in the nature of the agencies by which the health of the inhabitants is impaired. Within the towns we find the houses and streets filthy, the air fetid, disease, typhus and other epidemics rife amongst the population, bringing in the train, destitution and the need of pecuniary as well as medical relief; all mainly arising from the presence of the richest materials of production, the complete absence of which would, in a great measure, restore health, avert the recurrence of disease, and, if properly applied, would promote abundance, cheapen food, and increase the demand for beneficial labour. Outside the afflicted districts, and at a short distance from them, we find the aspect of the country poor, and thinly clad with vegetation, except rushes and plants favoured by a superabundance of moisture, the crops meagre, the labouring agricultural population few, and afflicted with rheumatism and other maladies, arising from damp and an excess of water, which if removed, would

* *Outlines of General Pathology*, by DR. FEECKLETON.* *FORBES'S Oriental Memoirs*

relieve them from a cause of disease, the land from an impediment to production, and if conveyed for the use of the town population, would give that population the element of which they stand in peculiar need, as a means to relieve them from that which is their own cause of depression, and return it for use on the land as a means of the highest fertility.

In the *Report on the Sanitary Condition of the Labouring Population of Great Britain*, from which we quoted the preceding paragraph, is the following quaint description of the town (by the Provost) of Inverness.

Inverness is a nice town, situated in a most beautiful country, and with every facility for cleanliness and comfort. The people are, generally speaking, a nice people, but their sufferance of nastiness is past endurance. Contagious fever is seldom or ever absent; but for many years it has seldom been rife in its pestiferous influence. The people owe this more to the kindness of Almighty God, than to any means taken or observed for its prevention. There is not a street, lane, or approach to it that is not disgustingly defiled at all times, so much so as to render the whole place an absolute nuisance. When cholera prevailed in Inverness, it was more fatal than in almost any other town of its population in Britain.

That the filthy and disgraceful state of many of the streets in the densely populated and neglected parts of Manchester, where the indigent poor chiefly reside, cannot fail to exercise a most baneful influence over their health, is an inference which experience has fully proved to be well founded; and no fact is better established than that a large proportion of the cases of fever, which occur in that city, originate in these situations. Of the 182 patients admitted into the temporary fever-hospital, in Balloon-street, 135, at least, came from unpaved or otherwise filthy streets, or from confined and dirty courts and alleys. * * Of 687 streets, inspected by a voluntary association in that town, 248 were reported as being unpaved, 112 ill ventilated, and 352 as containing stagnant pools, heaps of refuse, &c.

Dr. Waite, in his report on the condition of the population of Lynn, states that he had seen typhus fever rage in families where the refuse of a market-gardener was suffered to accumulate in a hole, immediately before three or four houses, whilst families at fifty yards distance from it were perfectly free.

Dr. Laurie, in his report on the sanitary condition of Greenock, says, The first question I generally put when a new case of fever is admitted, is as to their locality. I was struck with the number of admissions from Market-street; most of the cases coming from that locality became quickly typhoid and made slow recoveries. This is a narrow back street; it is almost overhung by a steep hill, rising immediately behind it; it contains the lowest description of houses, built closely together, the access to the dwellings being through filthy closes. The front entrance is generally the only outlet. * * In one part of the street is a dunghill—yet it is too large to be called a dunghill. I do not mis-state its size when I say it contains a hundred cubic yards of impure filth, collected from all parts of the town. The effluvia all round about this place in summer is horrible. There is a land of houses adjoining, four stories in height, and in the summer each house swarms with myriads of flies; every article of food and drink must be covered, otherwise, if left exposed for a minute, the flies immediately attack it, and it is rendered unfit for use, from the strong taste of the dunghill left by the flies. But there is a still more extensive dunghill in the same street; at least, if not so high, it covers double the extent of surface. In two of the narrow closes opposite the market, there is in each a small space not built upon, and that space, being the only spare ground in the close, is occupied by a dunghill; these two closes are notorious as nurseries for fever. I believe it to be a rare occurrence when fever is not to be found in them during any time in the year.

Health-charts of Bethnal Green Parish, and of the town of Leeds, accompany the *Sanitary Report*. In these maps the localities in which fever fell most heavily are shaded with a deeper tint, while the higher lights represent those parts that enjoyed comparative freedom from disease. The lighter tints are found to indicate the points of greatest cleanliness as well as of least disease, and the darker tints to denote the districts where the tene-

ments are most crowded, the streets filthiest, and deaths most frequent. In the town of Leeds, likewise, the track of fever was discovered to be nearly identical with that of the cholera. It is difficult to imagine more convincing facts.

The removal, then, of deleterious materials being admitted to be an act of bare humanity, much attention has been devoted to effect it efficiently.

It might have been expected, from the value of the refuse as manure, that the great demand for it would have afforded a price which might have returned, in some degree, the expense and charge of cleansing. But this appears not to be the case in the metropolis. It is stated that at present, with the exception of coal-ashes, which are indispensable for making bricks, some description of lees, and a few other inconsiderable exceptions, no refuse in London pays half the expense of removal by cartage.

A practical example, however, of the money value which lies in the refuse of a town, when removed in the cheapest manner, and applied in the best form adapted to production, (viz., by a system of cleansing by water,) is afforded in connexion with the city of Edinburgh. It appears that the contents of a large proportion of the sinks, &c., of that city are conveyed in covered sewers to the eastern suburb of the town, where they are emptied into a stream called the Foul Burn, which passes ultimately into the sea. The stream is thus made into a large uncovered sewer or drain. Several years ago some of the occupiers of the land in the immediate vicinity of this stream diverted parts of it, and collected the soil which it contained in tanks for use as manure.

After a time it was observed that the most beneficial mode of applying the manure was in the liquid form, and the farmers then conducted the stream over their meadows by irrigation. By degrees about 300 acres of meadow land have thus been systematically irrigated, some of which, once worth from 40s. to 50s. an acre, are let to cow-feeders at an average rent of from 20l. to 30l. per acre. Some of the richest meadows were let in 1835 at 38l. per acre.

While it is admitted that the process of applying manure by irrigation is productive of less deleterious gas than by spreading it over fields in a solid form, it is at the same time evident that when, as at Edinburgh, its application is confined to the neighbourhood of the city, it can scarcely fail to engender disease. The farmers vindicate the measure on account of its utility, as the grass which these meadows produce by virtue of irrigation supports in Edinburgh 3300 cows, and in Leith 600 cows, during the season. But legal means are being used to abolish or modify the practice, and it is said that a compensation of 150,000l. is claimed by the interested parties.

To prevent the pollution of the atmosphere and water-courses of a town, and the consequent production of malignant forms of fever, as well as to economize the material of manures, it has been proposed to convey in covered sewers the whole of the organized deposits by means of water. The following case is decisive as to the efficiency of water power. A contract was about to be entered into by the West Middlesex Water Company for hauling out of their reservoir a deposit three or four feet deep. The contractor offered to remove this quantity, which covered nearly an acre of surface, for the sum of 400l., in three or four weeks. When the directors went to see the basin, to decide upon the contract, "the reservoir was as free from any deposit as a house-floor;" an officer of the establishment had caused the refuse to be stirred up and mixed with water, and washed into the main-pipe, at the cost of 40l. or 50l., and three or four days' labour.

Since the discovery thus made, the silt has been regularly cleansed out into the common sewers. It is to be observed, in respect to the relative cheapness of the two modes, that the contractor would only have removed the silt to the nearest convenient place of deposit in the immediate vicinity of the reservoir, whereas, in the fluid state, it might be carried at the actual cost of conveying water, as far as it is at

present conveyed, and sold with a profit, twelve or fourteen miles, and raised to heights of 150 feet, at twopence-half-penny per ton.

The expense of laying on water in a labourer's tenement, and providing a butt, or receptacle to hold it, is stated, on an average, to be 40s., which will last twenty years. And let no one consider it an unnecessary luxury, the distribution of pure water through the dwellings of the poor:—

In London, the usual (annual) charge is 10s. for a tenement containing two families, for which sum two tons and a half per week may be obtained, if needed. For 5s. per annum, then, as a water-rate, each labourer's family may be supplied in the metropolis with one ton and a quarter of water weekly, if they find it necessary to use so much. The ton is 216 gallons, equal to 108 pailfull, at two gallons the pail. Thus, for less than one penny farthing, 135 pails-full of water are taken into the house without the labour of fetching, without spilling or disturbance, and placed in constant readiness for use. Under any circumstances, if the labourer or his wife, or child, could otherwise be employed, even in the lowest paid labour, or in knitting stockings, the cost of fetching water by hand is extravagantly high as compared with the highest cost of water, lifted by steam, and conducted through iron pipes at a large expenditure of capital (the lowest in London is about 200,000*l.*) and by an expensive management. In illustration of the difference in economy of the two modes of conveyance, I may mention that the usual cost of filtered water carried into the houses at Paris by the water-carriers, is two *sous* the pailful, being at the rate of 9s. the ton; whilst the highest charge of any of the companies in London for sending the same quantity of water to any place within the range of their pipes, and delivering it at an average level of 100 feet, at the highest charge, is 6*d.* per ton.—*Sanitary Report*, p. 71.

So far, therefore, from there being any reasonable apprehension as to the expense of an abundant supply of water, the investigation of the matter at the outset, shows that the economy of each home, even the poorest, demands a full supply for the common purposes of life.

By the application of capital and machinery, the cost and conveyance of substances in suspension in a fluid, even at the water-companies' prices, may be rendered thirty, and even more than forty times as cheap as collection by hand labour and removal by cartage. In the metropolis, where the persons who water the roads may obtain water gratuitously from pumps, the water supplied by stand-pipes, by some of the water-companies, at 1*l.* per 100 tons, is found to be twice as cheap as the mere labour of pumping the water into the cart.

No collection, or reservoir, of organic matter would be suffered to remain upon private premises, or in the streets, to saturate the air and soil, (and necessarily the blood of those who breathe the tainted air), with the putrid material of malignant fevers. After saving the time, the money, comfort, and health of the inmates of the poorest tenement, the refuse water would at once pass through proper pipes into the main drains and sewers, together with the accumulations in the streets, which would be swept by hand-labour at proper intervals into gully-holes. In Holborn and Finsbury, (where this system of drainage has been carried out, as far as existing circumstances would allow, by Mr. John Roe, the able surveyor of that district,) the breaking up of the streets is avoided by the formation of side entrances; cast-iron flushing gates are fixed in the sewers; the ordinary flow of water accumulates at these gates, which are opened periodically to allow the rush of water to sweep away all deposit.

The size and form of the channel is of scientific importance. A small oval drain with a constant flow of water is found to suffer no deposit, while the gigantic sewers of Westminster necessarily stagnate; the force of an insufficient current of water being spread and spent over too large a surface.

Liquid manure (the form which has been found to be least injurious to man, and most beneficial to vegetation)

could thus be conveyed underground by water-carriage through iron pipes, at a distance from the populous haunts of towns; and wherever the levels were not convenient, or it were desirable to send the refuse over heights for distribution, the contents might be lifted by steam-power, as water is lifted in the drainage of the fens, and so applied to irrigate land while still in the liquid state. Or, it has been proposed to continue the sewers to some distance from the town, and then to discharge their contents into a series of covered catch-pits, allowing the water to filter off after depositing the solid particles. The liquid portion would be available for irrigating the neighbouring meadows, and the solid manure could be conveyed to the more distant arable land.

It has been calculated that 115,000 tons of refuse matter, solid as well as liquid, are daily discharged into the Thames by the metropolis, and England and Wales contain two hundred and thirty other towns, with populations varying from 20,000 to 262,000 inhabitants. To raise the comforts of all these homes by an abundant supply of water; to increase physical health, and moral well-being, by an increased cleanliness; to reduce the enormous expense of an imperfect sewerage by a cheaper and more efficient substitute; to maintain the purity of soil, air and water, and to economise the labours of the agriculturist, as well as to augment his harvests,—in fine, *to change fever into food*, is the benevolent design of science, chastened of its pride, and subservient to purposes of manifest goodness. F.

SPARE MINUTES.

RESOLVED MEDITATIONS AND PREMEDITATED RESOLUTIONS.

As in virtues, he that hath one, hath all: so in vices, he that hath one, hath seldom one alone. He that will steal must lie: and he that will steal and lie, will swear his lie; and so easily screw himself up to perjury. He that will be drunk, what will he not be when he is drunk? and being slipped down from the top of reasonable sense, where stoppeth he from tumbling down into a beastly sensuality? I will therefore *give the water no passage, no not a little*, lest it make a breach, and that breach let in an inundation to drown the sweet pastures of my soul. I see the devil's claw is an entering-wedge to let in his foot; that foot his whole body. I will be careful to set a watch and keep the door, that sin may have no admittance. I cannot be too careful, so it be to the purpose; it cannot be to the purpose if it be too little.

THE laws in themselves are the scales of justice, the wronged poor man's shelter, the pillars of the commonwealth: but the abused practice makes those scales unequal, that poor man's shelter a man's poor shelter for his wrongs. The proof of this appears with the juries at the assizes in their proofs: when one may often discern perjury usher in the evidence to the jury, and injury follow with the verdict. I admire with reverence the justice and wisdom of the laws: I deplore with compassion the abused practice of the laws, and resolve rather to bear with patience an hail shower of injuries, than to seek shelter at such a thicket, where the brambles shall pluck off my fleece, and do me more hurt by scratching, than the storm would have done by hailing. I care not for that physis, where the remedy is worse than the disease.

I WILL not much commend others to themselves, I will not at all commend myself to others. So to praise any to their faces is a kind of flattery, but to praise myself to any is the height of folly. He that boasts his own praises, speaks ill of himself, and much derogates from his true deserts. It is worthy of blame to affect commendation.

[ARTHUR WARWICK, 1637.]

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